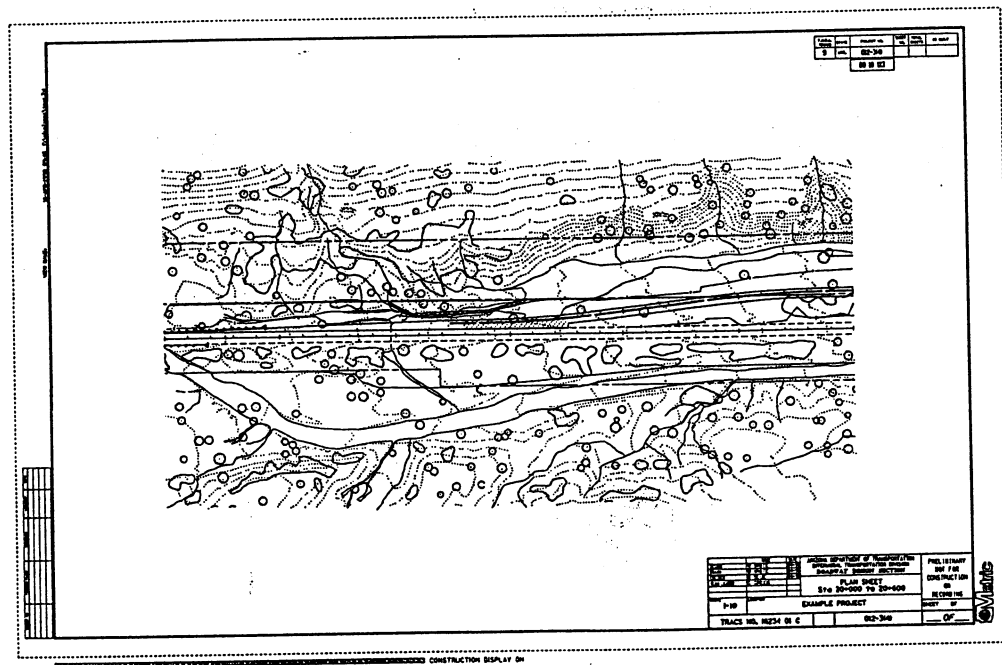# Designer's Guideline for Plan Sheet Development
(Example Project)

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In this example we are developing a metric project which is 3000 meters long, beginning at station 20+300 and ending at station 23+300. The Metric plot scale is 2000:1. Extra topography before and after the project construction limits have been provided to allow for project limit changes after the sheets have been cut.

To determine how many plan sheets are needed, first calculate how many sheets are required based on the scale that will be used. Since the ADOT border cells were created based on the same plot scale (1000:1), set the MicroStation active scale to 1 (keyin, "as=1") to allow for adequate sheet coverage at 600 meters per sheet. If 3000 meters is divided by 600 meters per sheet, the result is 5 plan sheets.

In accordance with the Roadway Drafting Guides, the plan sheets should begin and end with an even station. Therefore, start the first sheet at 20+000, ending the last sheet at 23+600. This provides 300 meters before and after the project in case of project limit changes. The project coverage then becomes 3600 meters long, so again use the divisor of 600 meters per sheet and the result is now 6 sheets.

Sheet #1
Sta 20+000 to 20+600

Sheet #4
Sta 21+800 to 22+400

Sheet #2
Sta 20+600 to 21+200

Sheet #5
Sta 22+400 to 23+000

Sheet #3
Sta 21+200 to 21+800

Sheet #6
Sta 23+000 to 23+600

Construct the clipping lines perpendicular to the centerlines of the new alignments, on level 34 (no designation) in the h1234des.dgn base map file (contains only the new design geometrics). If utilizing InRoads use the Station Offset command to construct these lines. The existing topography is "referenced" from the h1234tpo.dgn base map file. Construct the clipping lines perpendicular to the pre-determined stations, approximately 250m long.
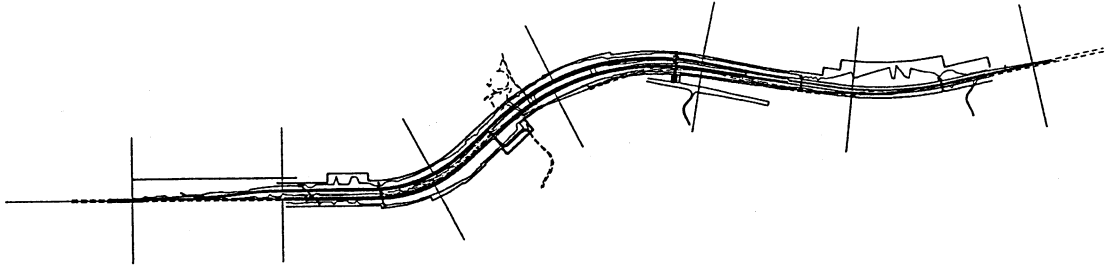
If there are two separate alignments construct the lines perpendicular to both centerlines.
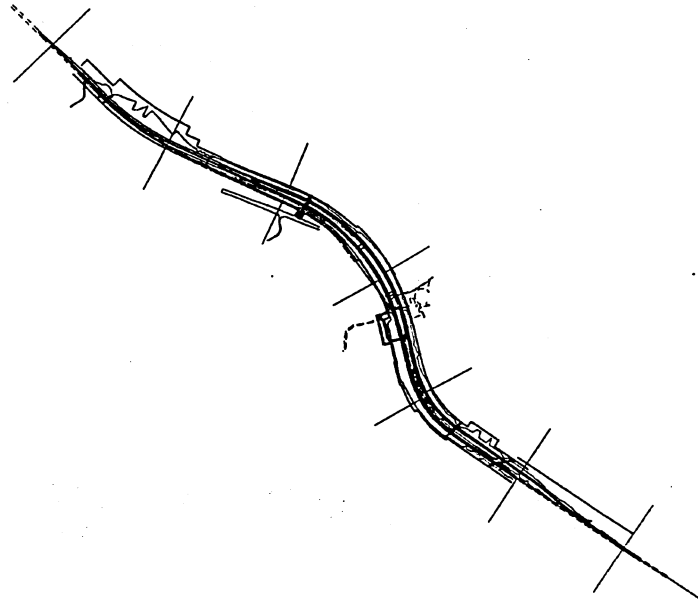
Clipping Lines

Clipping Lines
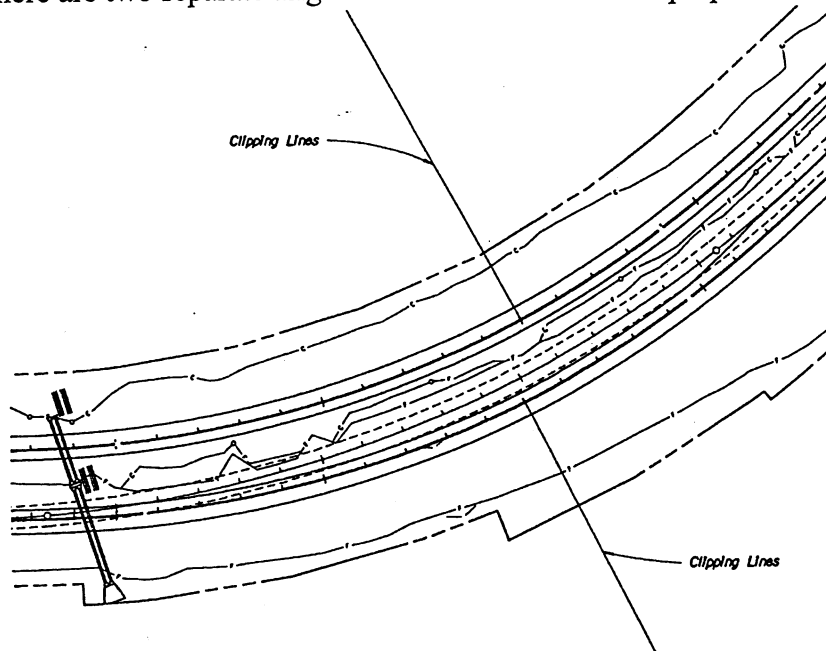
Create h1234bdr.dgn which contains the plan sheet border. It will be attached as a reference file later in this document. Use it as a reference file so that any changes made to this file will automatically be reflected on our plan sheets. In this example we used the plan sheet called hwypl from /usr/adot/metric/std/adot.cel (paths may vary), we placed it at a coordinate value of 0,0 then filled out the required information. Then we saved the view as sv=1,plan sheet. Remember when keying in the route information we need to keyin: "set parseall of" at the command prompt so that when we attach it later as a reference file it will not rotate the route information. Please take notice of how the plan sheet description was input for later use.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	012-3(4)			
		00 10 123			

|	NAME	DATE	ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION ROADWAY DESIGN SECTION	PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING
DESIGN	W WHITE	04-98		
DRAWN	W WHITE	04-98	PLAN SHEET Sta XXX+XXX to XXX+XXX	
CHECKED	B BLUE	04-98		
TEAM LEADER	G GREEN			
ROUTE I-10	LOCATION		EXAMPLE PROJECT	SHEET OF
TRACS NO. HI234 01 C			012-3(4)	___ OF___

Metric

Create the first plan sheet h1234p01.dgn. Create a new file utilizing the /usr/adot/metric/std/seed2d.dgn (paths may vary). Reference in the new design basemap file h1234des.dgn and the existing topography basemap h1234tpo.dgn.
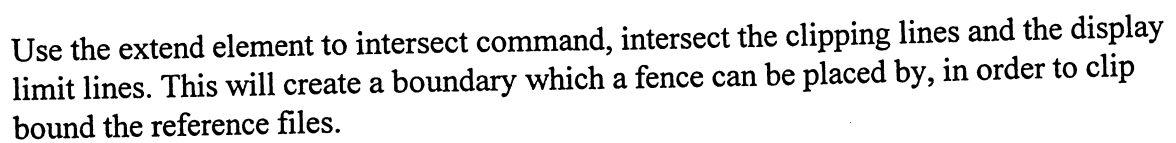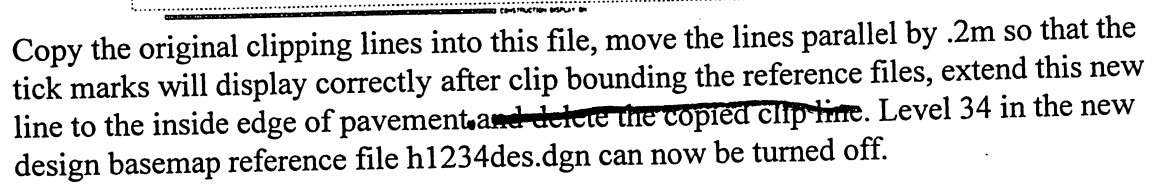
Rotate the view so the reference files will line up straight on the screen from left to right. This was accomplished by utilizing rotation by the 2 pt method, then select the clipping lines.
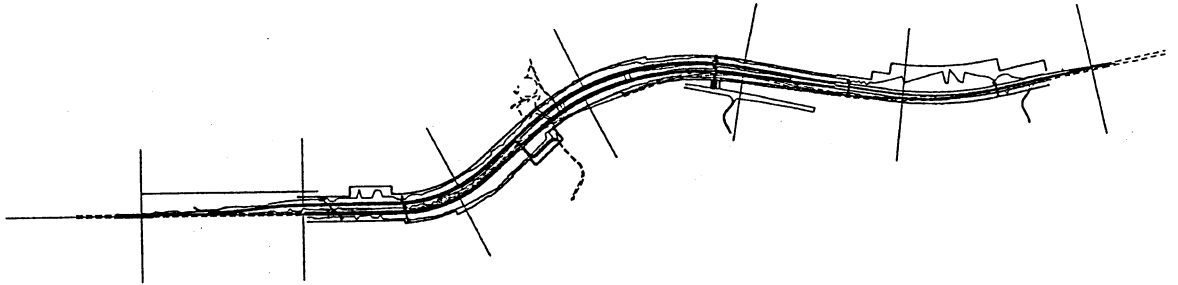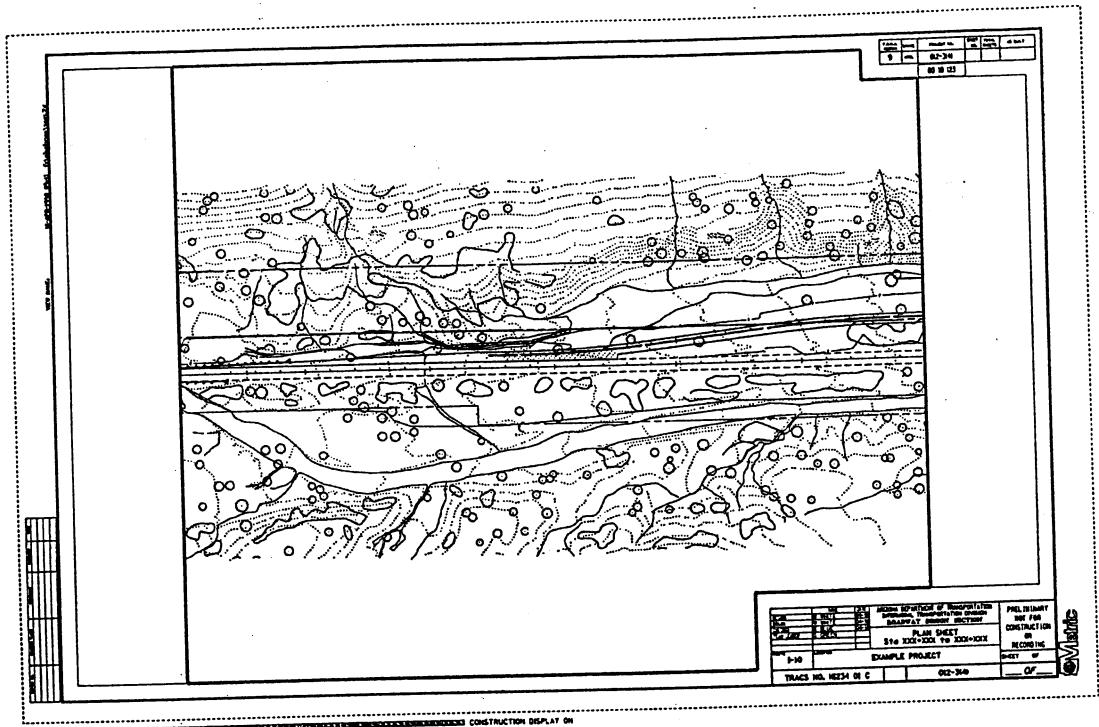
Bring in the border reference file h1234bdr.dgn. By placing a construction line on level 34 from the first clipping line to the second clipping line, there is a midpoint on that line that can be used when bringing in the plan sheet, then place it with a midpoint snap. Bring in this reference file as a saved view, and then reference file move the plan sheet into the correct location. It might be a benefit to turn off the reference files so it is easier to snap to the midpoint of the line previously drawn.
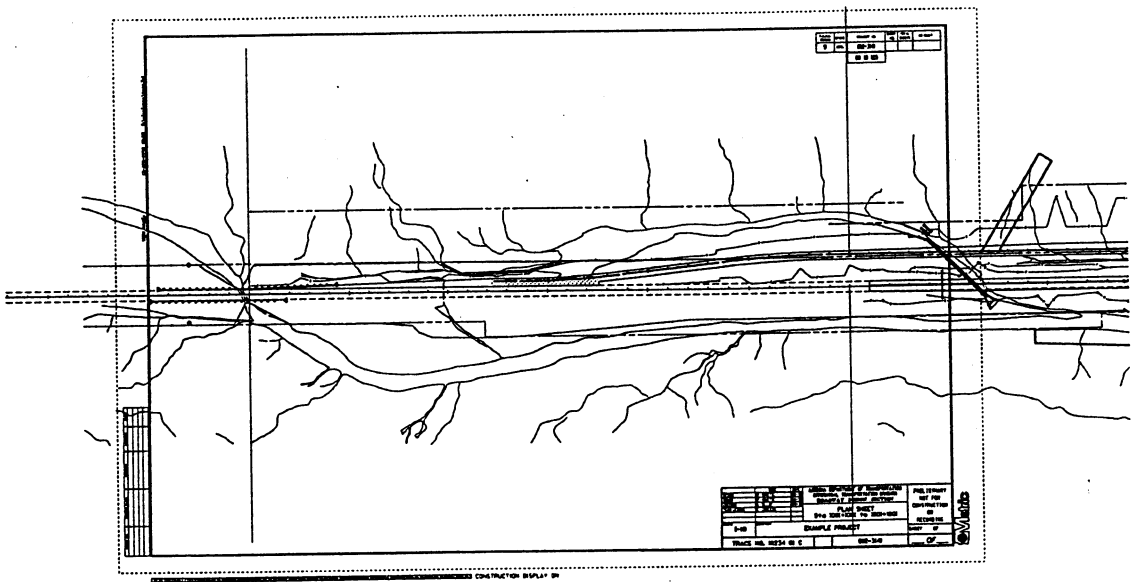
Place our display limit lines on level 34 (no designation). Place lines connecting all the inside purple active points of the plan sheet.

Copy the original clipping lines into this file, move the lines parallel by .2m so that the tick marks will display correctly after clip bounding the reference files, extend this new line to the inside edge of pavement, and delete the copied clip line. Level 34 in the new design basemap reference file h1234des.dgn can now be turned off.

Use the extend element to intersect command, intersect the clipping lines and the display limit lines. This will create a boundary which a fence can be placed by, in order to clip bound the reference files.

This graphic demonstrates the clipping lines intersected with the display limit lines. It shows what the file looks like after the reference file clip boundary command has been executed, the bold lines represent the shape used for the fence. Turn off level 34 because the clipping and display limit lines are no longer needed. Put in the correct station on the plan sheet title area.


```
                    PLAN SHEET
              Sta XXX+XXX to XXX+XXX
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Accomplish this by utilizing the reference file clip mask command, and the copy element command. Copy the title, in this case down 100 units utilizing the dx command (dx=0,-100).

	NAME	DATE	ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION ROADWAY DESIGN SECTION	PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING	Metric
DESIGN	W WHITE	04-38			
DRAWN	W WHITE	04-93			
CHECKED	B BLUE	04-93			
TEAM LEADER	G GREEN				
ROUTE I-10	LOCATION		EXAMPLE PROJECT	SHEET OF	
TRACS NO. H1234 01 C			012-3(4)	___ OF___	

PLAN SHEET
Sta 20+000 to 20+600

Edit the text with the correct stationing, place a fence block inside the title block area (represented by the bold block), then utilize the reference file clip mask command and the original title block information will become masked and not able to be seen. Move the corrected copied text back up by utilizing the dx=0,100 keyin.

	NAME	DATE	ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION ROADWAY DESIGN SECTION	PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING	Metric
DESIGN	W WHITE	04-38			
DRAWN	W WHITE	04-38			
CHECKED	B BLUE	04-38	PLAN SHEET Sta 20+000 to 20+600		
TEAM LEADER	G GREEN				
ROUTE I-10	LOCATION		EXAMPLE PROJECT	SHEET OF	
TRACS NO. H1234 01 C			012-3(4)	___ OF___	

Turn on all the reference files attached and the plan is completed. The final product is displayed on the cover sheet.